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AUTHOR Moncrief, Michael B.
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ABSTRACT

This paper describes the components of an Instructional Accomplishment Information (IAI) system, discusses general procedures for using the information reports to communicate instructional accomplishments to appropriate audiences, compares IAI information and standardized tests in a public relations context, and notes the role of educational research and development in developing IAI systems. Although typically viewed as mechanisms for diagnosing deficiencies, instructional "management" information systems can help educators identify and document what students learn as a result of instruction. To obtain an IAI system, schools can develop their own, convert a commercially available instructional management system, or use already developed systems. IAI reports provide timely information about the progress of instruction in schools and classes to participants, funding agencies, policymakers, the local community, and other education agencies. The IAI user interprets and presents this information to audiences through formal oral presentations, meetings among participants, written reports, or informal presentations. Unlike traditional public relations activities, IAI provides qualitative and quantitative performance and pacing data that indicate how well pupils are attaining the outcome proficiencies; such systems are more appropriate than stardardized tests for reporting and crediting the results of instruction. The educational research and development community has the greatest opportunity to develop complete IAI systems. (CHM)

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

USE OF INFORMATION SYSTEMS TO ACKNOWLEDGE INSTRUCTIONAL ACCOMPLISHMENTS OF SCHOOLS

Michael H. Moncrief

ABSTRACT

Instructional "management" information systems are typically viewed as mechanisms for "diagnosing deficiencies" and often focus on what students have failed to learn. Such systems, however, can be viewed as tools which help educators identify and document what students learn as a result of instruction. Instructional program information systems then become not only a powerful tool for guiding the instructional interactions of students and teachers, but also a means for crediting instructional accomplishments in a manner understandable by various audiences including parents, school boards, and funding agencies. Described in this paper are the characteristics and components of current instructional "management" systems. The use of instructional program information in crediting accomplishments is described and contrasted with traditional school public information activities and the reporting of standardized test results.

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USE OF INFORMATION SYSTEMS TO ACKNOWLEDGE INSTRUCTIONAL ACCOMPLISHMENTS OF SCHOOLS

Michael H. Moncrief

Schools are encountering an ever-increasing need to demonstrate and document their instructional accomplishments to the public. Parents and the local community want to know what pupils are being taught and the degree to which they are attaining important proficiencies. School boards and superintendents want concise information about how programs are operating in their district--information that will enable them to make policy decisions and provide them with an empirical basis for documenting and describing district instructional accomplishments to their constituents. Legislators and governmental agencies want quantitative reports of the pupil proficiencies resulting from use of their programs and dollars--information often required for continued funding. In addition, teachers, principals, and supervisors want to know what effects their efforts are having on pupil learning.

Instructional Accomplishment Information (IAI) systems, made possible by recent technical advances in outcomes-referenced instruction and assessment and in automated data processing, provide one means for meeting the information requirements of each of these groups. While the specific features of such information systems vary, most generally provide documentation of instructional performance information several times during the school year. They usually include data that indicate pupils' level of outcome attainment and rate of progress in an instructional program.

This paper (1) describes the components of an IAI system; (2) describes the general procedures for using the information reports to help communicate instructional accomplishments to appropriate audiences; (3) compares IAI information and standardized tests in a public relations context; and (4) notes the role educational R&D has in developing IAI systems.

COMPONENTS OF AN IAI SYSTEM

The basic components of an IAI system are:

- Statements of desired outcomes (objectives).
- Inventories (assessment mechanisms) and operational procedures for obtaining information on pupil performance. This information will be analyzed and processed into IAI reports.
- Resources for orienting and training all appropriate school personnel in IAI operating procedures.
- IAI reports with separate reports or sections for students, teachers, parents, principals, and district administrators.
- Resources for training school personnel in the appropriate interpretation and effective use of IAI information.

Schools can use various strategies to obtain an IAI system. One method would be for the schools to develop their own system. Starting with objectives that were either developed by the teachers or selected from a collection, school personnel could work (usually after school in various workshops and committees) to develop pupil performance inventories, assessment procedures, data processing procedures, report formats, staff orientation and training procedures, etc.

Anyone who has been involved in teacher workshops on writing objectives can begin to appreciate the time required for this type of activity and the problems involved in controlling the quality and consistency of the "products." From even a cursory examination of tasks and types of expertise involved in developing an IAI system, it becomes apparent that the "do-it-yourself" strategy is only reasonably possible in the nation's larger school districts. Even in these districts, such a large R&D effort is of questionable appropriateness for an institution that has primarily a service orientation and mission.

A second method schools can use in obtaining an IAI system is to start with an available instructional management system such as IPI (Cooly & Glaser, 1969), PLAN (Flanagan, 1970; Westinghouse Learning, 1971), CAM (Gorth, 1975), or SCORE (Foreman, 1975), and to convert it into an IAI system. Such a procedure would take advantage of the programmatic efforts and technical expertise of R&D institutions. However, this method for obtaining IAI is more difficult than it appears. These instructional management systems, in an attempt to "help" the teacher, levy a heavy time burden on teachers and students and usually do not provide reports in a form suitable to acknowledge accomplishments to audiences other than the teacher.

A third method is to use already developed IAI systems. These are systems that have all of the components described earlier, including report formats appropriate for different audiences and resources for training school personnel in the appropriate interpretation and effective use of IAI information. To date there are only a limited number of IAI systems--e.g., the Proficiency Verification System (Buchanan & Milazzo, 1977) and Instructional Information Systems (Hanson & Doherty, 1973). But more systems will come, for they are needed if the information demands described in the first paragraph are to be appropriately and adequately met.

Whatever procedures are used in developing or obtaining an IAI system, resources for training supervisor/administrative personnel in the effective use of IAI reports must be included if full benefits are to be received from the system. Developing an IAI system is of little value if the recipients of the IAI reports are unable to interpret and

use the information. While printed report interpretation guides may provide to some extent the necessary procedures for interpreting IAI reports, they are usually not sufficient by themselves in providing the training needed for school personnel to take action based on such reports. A more comprehensive training program is needed.

In conducting such training, for example, sample IAI reports could be used to present school personnel with exercises and simulation activities where they read, interpret, and make decisions based on IAI report information. Such training, usually in a workshop context, would provide an opportunity for the participants to see how IAI reports can be of use to them in addressing their current roles and responsibilities.

USING IAI TO CREDIT ACCOMPLISHMENTS

The preceding section outlined the characteristics of IAI systems. The primary purpose of this paper, however, is not to describe IAI systems; rather it is to focus on the use of IAI report information in helping schools obtain credit for increasing the proficiencies of their pupils.

Audiences

IAI reports can be used to report the schools' instructional accomplishments to a variety of audiences.

Reports to Participants. IAI reports provide principals, supervisors, teachers, pupils, and parents with timely information about the progress of instruction in their schools and classes. Individual pupil progress and accomplishments are identified for teachers and may be shared with parents in a variety of ways. Seeing the verified attainment of new capabilities and skills encourages parents to participate fully and constructively in their children's educational growth. Teachers whose classes consistently demonstrate outstanding performance or improvement can be recognized for their accomplishments and invited to share techniques with others by participating in workshops or inservice seminars. Feedback that verifies and credits instructional accomplishments is directly satisfying to everyone concerned with improving education and pupil learning.

Reports to Funding Agencies. Where categorically mandated funds are being used, IAI reports can serve as the basis for meeting evaluation requirements. The format for these reports can be built into the proposal

for obtaining funds, thus allowing information of interest to the funding agency to be generated from the outset. Such information will also contribute in a significant way toward meeting the information dissemination requirements specified by most funding agencies.

Reports to Policymakers. School superintendents, school board members, and other officials concerned with school policy and finance appreciate the concise information provided by IAI. They are shown with new clarity and detail how instructional programs are operating at the district, school, and class levels. IAI information provides them with an empirical basis for making decisions concerning subsequent program use, including whether or not to continue or expand a program (e.g., Are there some schools, grade levels, or classes whose program(s) are effective and merit continuance and others whose programs warrant replacement?). IAI reports also provide quantitative and qualitative data for use by policymakers for documenting and describing to their constituents the district's instructional accomplishments.

Reports to the Local Community. The local community seldom has the opportunity to obtain information about school performance in a manner that positively reflects on the schools. IAI reports can be used to inform the community about instructional program accomplishments in terms that everyone can understand. Positive evidence of program success is an effective means of gaining public support not only for particular instructional programs, but for the district and school as well.

Reports to Other Education Agencies. Information provided by IAI systems can and should be shared with local and state agencies--state

departments of education, universities, teacher organizations, and other professional educational associations. Furnishing these important agencies with unsolicited information provides the basis for obtaining their interest, support and assistance.

Methods for Crediting Accomplishments

While IAI reports provide information on pupil proficiencies resulting from instruction, it is the IAI user who must interpret and present this information to various audiences. Although the specific format used to communicate instructional accomplishments depends on the particular audience and situation, there are some basic strategies that apply.

Formal Oral Presentations. Informing audiences such as school boards, parent organizations, and community groups of instructional success often involves a formal oral presentation. Although these presentations should be adapted for each particular group, the following procedures should be considered for inclusion in such presentations:

(1) Describe the purpose of the program and the general proficiency areas developed.

(2) Describe and illustrate the major pupil activities in these proficiency areas.

(3) Array or combine outcome (proficiency) categories so they are meaningful to the particular audience. This usually involves a more general grouping and description of outcomes than would be presented to professional educators.

(4) Provide sample assessment items to clarify the operational meaning of the outcome statements.

(5) Provide graphic as well as verbal representations of outcome attainment. Audiovisual aids can be effectively used in many parts of these formal presentations.

(6) Use the presentation as an opportunity to indicate what subsequent action will be taken to further increase performance results. No matter how positive performance results may be, there are always areas in which performance can be improved. Providing empirical evidence of learning and at the same time indicating a continued sensitivity to areas of improvement by proposing specific actions to bring about such improvement can go a long way toward winning the confidence and support of these important groups.

Consider the following sample IAI presentation, based on actual IAI report information from a popular kindergarten reading program, the Beginning Reading Program (BRP).* The principal first describes the program and how it is used in the school's kindergarten classes. He then describes the reading skills that the teachers have helped pupils develop through use of the program. His emphasis throughout the presentation is on the proficiencies developed as a result of instruction and that they have been attained through the efforts of the teacher and pupils. He discusses the program mainly as a vehicle which is used to develop pupil reading skills and to describe their learning activities.

During the presentation the principal explains that the purpose of this kindergarten reading program is to develop the children's ability to: read the 100 words taught directly in the program; sound out and read new words composed of word elements taught in the program; and demonstrate comprehension of the material they read. He explains that attainment of these outcomes is assessed under four categories: sight words, word elements, letter names, and sentences. He describes the outcomes and their assessment using visuals (transparencies, posters, etc.) similar to those in Figure 1. Displays of program materials and

*Developed by SWRL and commercially available from Ginn and Company.

Figure 1: Sample visuals for explaining the outcomes developed in the Beginning Reading Program.

Visual A:

SIGHT WORDS

Mark the word them.

the	Sam	them	this
☐	☐	☐	☐

Visual B:

WORD ELEMENTS

Mark the letters for the sound ell.

ill	et	it	ell
☐	☐	☐	☐

Visual C:

LETTER NAMES

Mark the letter C.

S	C	E	O
☐	☐	☐	☐

Visual D:

SENTENCES

Read the sentence.

Mit is in his bed.

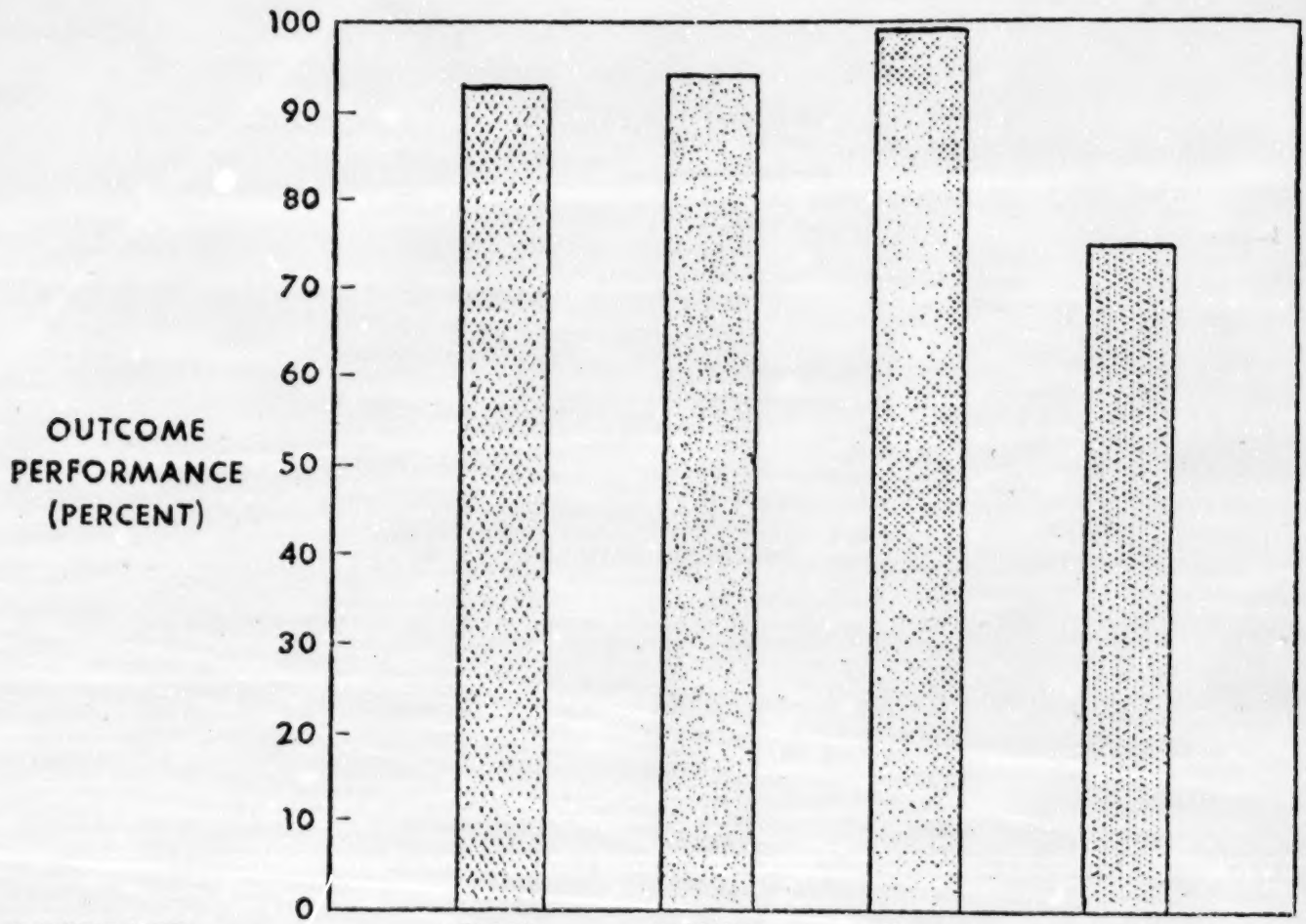
classroom photographs of pupils using them can describe and illustrate pupil instructional activities. Visuals similar to those in Figure 2 provide graphic and verbal descriptions of how well pupils are doing.

Presentations such as this offer schools greatly needed opportunities to provide the local community, parents, the school board, and others with positive evidence of their instructional success; they offer an effective means of gaining public support. When information on current accomplishments is then combined with a description of subsequent actions that will be taken to increase performance results (e.g., establishing a cross-age tutoring program), such presentations further enhance public confidence in the schools.

Meetings Among Participants. One of the main steps in communicating instructional accomplishments is the sharing of IAI report information among program participants--principals, teachers, etc. Their working together to interpret the data, arriving at common understandings of how well the programs are operating, and determining what, if any, subsequent action should be taken will increase the effectiveness of the IAI system.

Written Reports. Crediting instructional accomplishments to funding agencies and government bodies usually requires preparation of some type of written report. Many of the considerations relevant to oral presentations also apply to written reports. The effort involved in preparing written reports often can be minimized by writing the initial funding proposal so that the performance information to be submitted to the funding agency is exactly the same as that provided on the IAI reports. The funding report then requires little more than summarization and transfer of the IAI report information. It is then also possible to

Figure 2. Sample graphic representation of outcome attainment. (Percentage of outcome attainment shown is based on actual IAI report information.)



OUTCOMES	SIGHT WORDS	WORD ELEMENTS	LETTER NAMES	SENTENCES
TOTAL NO. ITEMS	18	9	6	10
MEAN SCORE	16.8	8.5	5.9	7.4

provide more detailed and comprehensive information to the funding agency simply by attaching a copy of the IAI report.

One example of the use of IAI systems in reporting to a funding agency (USOE) involved the use of ESEA Title III grant funds to purchase kindergarten instructional materials. Under the procedures established for use of these funds, districts purchasing selected kindergarten programs could use the IAI systems accompanying the programs to satisfy grant reporting requirements. Both the districts and USOE benefited from this arrangement. The districts were saved the time and cost of preparing their own individual reports, and the government was provided with comprehensive reports in a common format for comparing information than would otherwise have been available.

Informal Presentations. Informal presentations and personal contacts with key individuals are an important and effective means of crediting instructional accomplishments at strategic actionable points in the various economic, political, and regulatory-policymaking structures.

Procedures other than those described above, such as media releases, should be used in crediting instructional successes. Whatever medium is chosen, educators should be aggressive and take an advocacy role in reporting and taking credit for pupil proficiencies resulting from instruction.

DIFFERENCES BETWEEN IAI PUBLIC RELATIONS ACTIVITIES AND STANDARDIZED TESTS REPORTS

IAI as a Public Relations Activity

The use of IAI to credit instructional accomplishments parallels traditional school public relations activities in that both provide information to gain support for the schools. Typical public relations activities, however, often consist of testimonials and reports of "new" and "innovative" programs, with little indication of subsequent effect on pupil performance. When news stories do provide "data," they are generally based on standardized test results reporting variations of a few percentile points in global content areas. Other news stories about the schools are often related to a financial crisis or proposed tax increase.

In contrast, IAI provides qualitative and quantitative performance and pacing data that indicate how well pupils are attaining the outcome proficiencies. In the past, educators, parents, and the community have seldom had the opportunity to obtain this type of meaningful information. Such information should be capitalized upon and used to inform parents of their pupils' proficiencies. Stronger community support and understanding of the schools will be the result.

IAI and Standardized Tests

Standardized tests are by far the instruments most frequently used to evaluate instructional programs, to indicate the quality of instruction and to provide evidence of performance by the schools. Although the technical quality of such norm-referenced tests is well recognized,

they do not provide the same type of information that an IAI system provides.

Popham (1975) described some of the weaknesses of norm-referenced standardized tests in evaluating program effectiveness and their inability to credit the schools' instructional accomplishments:

> In spite of their time-honored use by American educators, these tests possess basic flaws when employed as measures of educational effectiveness. The deficiencies stem from their chief purpose--that is, to permit student performance to be assessed by comparing it to that of other pupils who have taken the same test. We say, for example, that Johnny "scored at the 85th percentile." This means that Johnny's score exceeded the performance of 85% of a representative sample of students to whom the test had also been administered.
>
> Standardized achievement tests were originally created to permit comparisons among students so that we could, for example, select the most capable individuals to fill a relatively few college openings. For this purpose only, the tests still have validity. (p. 5)

Basically, proficiency-referenced IAI systems provide different information than norm-referenced standardized tests. Standardized tests compare students against each other by measuring individual scores against the norm. Thus, approximately half of the pupils assessed will appear as "below average" no matter how much they have actually achieved. IAI assessment credits the achievement of all pupils; the success of one pupil is not measured by another's failure.

Popham also describes other characteristics of standardized tests that make them unsuitable and ineffective in assessing the effects of a particular school's instructional program.

> For one thing, achievement tests are produced by commercial publishers who must sell their product to the entire nation. But America's educational system is locally controlled, and so curriculum preferences differ widely from district to district, state to state. Even in fairly stable subject fields such as mathematics

> and reading, we find substantial variations in instructional emphases.
>
> This is why publishers of standardized achievement tests are loath, from a marketing viewpoint, to spell out exactly what their exams measure. If they did, the tests would not be widely purchased, since many educators would find them inconsistent with local instructional programs. Hence, the publishers use artfully vague terms in selling their wares. (What, for instance, does a "reading comprehension" test actually measure?)
>
> Local educators assume, of course, that a given test will encompass what their schools are stressing, be it reading or math. Yet, there is often an undetected but dramatic mismatch between what is taught and what is tested. Such disparities yield inaccurate evidence of educational effectiveness.
>
> Beyond that, standardized achievement tests fail to provide sufficient cues about ways to improve unsatisfactory programs. As a result, teachers who want to increase learner performance are stumped by administrative directives which assert, "Pull up your students' standardized test scores, or else!"
>
> In the Los Angeles Unified School District, some programs call for schools to improve pupil performance on standardized reading achievement tests by at least five percentile points annually. Yet the tests provide no detailed picture of precise weaknesses, and even well-meaning teachers are destined to fail in achieving periodic gains. (p. 5)

Another difficulty with the use of norm-referenced tests to assess the effects on instruction is the concern in their construction for maximizing variance. The technical procedures used to develop and improve these tests focus on the difficulty level of the items rather than their relationship to a set of agreed upon educational outcomes. Thus, Popham (1974) says,

> There is a danger that test items will be excluded which might prove useful in detecting the results of instruction. For example, items which are answered correctly by most learners after instruction would have to be modified or eliminated from the test since such items would not contribute sufficiently to individuals' variance. In time, particularly with standardized tests which have been revised often, these instruments become less and less sensitive to picking up those kinds of pupil growth which teachers often strive to produce. For if a larger proportion of teachers are becoming successful in promoting a given type of learner behavior, the test items which detect this increasingly homogeneous high performance will be discarded because they fail to produce their share of discrimination. (p. 36)

From a psychometric perspective, it should not be too surprising that those standardized tests whose original purpose and item characteristics were intended to yield maximum predictive validity do not reflect the same degree of content validity as tests specifically designed for that purpose. Popham (1975) observed that:

> Standardized tests, therefore, often consist of queries about trivial aspects of a subject, and so the tests provide a better measure of IQs than they do achievement.
>
> These assorted weaknesses have made achievement tests particularly useless in measuring the results of instruction--even high-quality instruction. As long as we continue to give the tests for that purpose, an inaccurate picture of educational quality will emerge. (p. 5)

Standardized norm-referenced achievement test results and public relations activities have been the primary means used to communicate what the schools are doing both internal to the educational community and to outside audiences. The argument here is not that standardized tests and PR activities should be replaced; each has a definite purpose that should be maintained. Rather, the point is that standardized tests are singularly inadequate vehicles for communicating the development of pupil proficiencies. IAI reports provide such information and also those who have worked to achieve these results.

In sum, IAI systems such as QA and PVS indicate at the pupil, class, school and district levels what has been learned. The emphasis of IAI systems is on describing the status and accomplishments of each group relative to well-defined proficiencies, rather than comparing groups and pointing out the weaknesses of one group relative to the strengths of another. IAI information systems are far more appropriate for reporting and crediting the results of instruction than are the mechanisms that have been generally available to the schools.

ROLE OF EDUCATIONAL R&D IN DEVELOPING IAI SYSTEMS

In considering the list of components that constitute a "complete" IAI system (p. 3), it is easy to see that time, cost, and expertise are required to develop a complete system. By putting forth extra effort, individual school districts are sometimes able to develop a partial IAI system consisting of the first three components. Larger districts can sometimes add one or two additional components. But it is the educational R&D community, free from the day-to-day tasks involved in operating schools, which has the greatest opportunity to pull together the resources and give the continued attention needed to develop complete IAI systems. The increasing number of IAI-type systems shows that R&D can and does serve this function. The development of complete IAI systems is very likely to be one of the most obvious and direct benefits of R&D to the nation's schools.

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